

# ZXM64P035L3

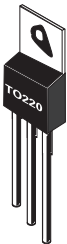
## 35V P-CHANNEL ENHANCEMENT MODE MOSFET

### SUMMARY

$V_{(BR)DSS} = -35V$ ;  $R_{DS(on)} = 0.075\Omega$ ;  $I_D = -12A$

### DESCRIPTION

This new generation of high cell density planar MOSFETs from Zetex utilises a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

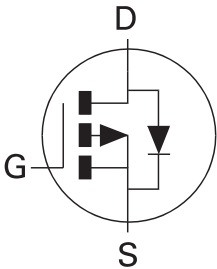


### FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- TO220 package

### APPLICATIONS

- 100W Class D Audio Output Stage
- Motor Control

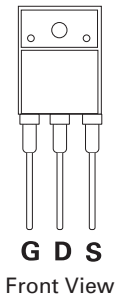


### ORDERING INFORMATION

DEVICE	MULTIPLES
ZXM64P035L3	1000

### DEVICE MARKING

- ZXM6
- 4P035



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## ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	-35	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current (V <sub>GS</sub> = -10V; T <sub>C</sub> =25°C)(a) (V <sub>GS</sub> = -10V; T <sub>A</sub> =25°C)(b)	I <sub>D</sub>	-12 -3.3	A
Pulsed Drain Current (b)	I <sub>DM</sub>	-19	A
Continuous Source Current (Body Diode) (b)	I <sub>S</sub>	-2.3	A
Pulsed Source Current (Body Diode)(b)	I <sub>SM</sub>	-19	A
Power Dissipation at T <sub>A</sub> =25°C (a) Linear Derating Factor	P <sub>D</sub>	20 160	W mW/°C
Power Dissipation at T <sub>A</sub> =25°C (b) Linear Derating Factor	P <sub>D</sub>	1.5 12	W mW/°C
Operating and Storage Temperature Range	T <sub>j</sub> :T <sub>stg</sub>	-55 to +150	°C

## THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Case (a)	R <sub>θJC</sub>	6.25	°C/W
Junction to Ambient (b)	R <sub>θJA</sub>	83.3	°C/W

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### ELECTRICAL CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise stated).

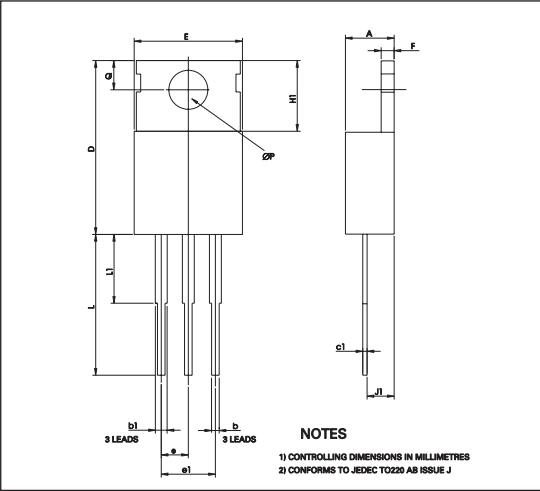
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V(BR)DSS	-35			V	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>			-1	μA	V <sub>DS</sub> =-35V, V <sub>GS</sub> =0V
Gate-Body Leakage	I <sub>GSS</sub>			± 100	nA	V <sub>GS</sub> =± 20V, V <sub>DS</sub> =0V
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	-1.0			V	I <sub>D</sub> =-250μA, V <sub>DS</sub> = V <sub>GS</sub>
Static Drain-Source On-State Resistance (1)	R <sub>DS(on)</sub>			0.075 0.105	Ω Ω	V <sub>GS</sub> =-10V, I <sub>D</sub> =-2.4A V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.2A
Forward Transconductance (1)(3)	g <sub>fs</sub>	2.3			S	V <sub>DS</sub> =-10V,I <sub>D</sub> =-1.2A
DYNAMIC (3)						
Input Capacitance	C <sub>iss</sub>		825		pF	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1MHz
Output Capacitance	C <sub>Oss</sub>		250		pF	
Reverse Transfer Capacitance	C <sub>rss</sub>		80		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t <sub>d(on)</sub>		4.4		ns	V <sub>DD</sub> =-15V, I <sub>D</sub> =-2.4A R <sub>G</sub> =6.0Ω, V <sub>GS</sub> =-10V
Rise Time	t <sub>r</sub>		6.2		ns	
Turn-Off Delay Time	t <sub>d(off)</sub>		40		ns	
Fall Time	t <sub>f</sub>		29.2		ns	
Total Gate Charge	Q <sub>g</sub>			46	nC	V <sub>DS</sub> =-24V,V <sub>GS</sub> =-10V, I <sub>D</sub> =-2.4A
Gate-Source Charge	Q <sub>gs</sub>			9	nC	
Gate-Drain Charge	Q <sub>gd</sub>			11.5	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V <sub>SD</sub>			-0.95	V	T <sub>J</sub> =25°C, I <sub>S</sub> =-2.4A, V <sub>GS</sub> =0V
Reverse Recovery Time (3)	t <sub>rr</sub>		30.2		ns	T <sub>J</sub> =25°C, I <sub>F</sub> =-2.4A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Q <sub>rr</sub>		27.8		nC	

#### NOTES

- (1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .
- (2) Switching characteristics are independent of operating junction temperature.
- (3) For design aid only, not subject to production testing.

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## Package Outline



## Package Dimensions

DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	3.56	4.82	0.140	0.189
b	0.38	1.01	0.015	0.040
b1	1.15	1.77	0.045	0.070
c1	0.41	0.50	0.016	0.020
D	14.23	16.51	0.560	0.650
E	9.66	10.66	0.380	0.419
e	2.29	2.79	0.090	0.110
e1	4.83	5.33	0.190	0.210
F	0.51	1.39	0.20	0.055
H1	5.58	6.85	0.230	0.270
J1	2.04	2.92	0.080	0.115
L	12.70	14.73	0.500	0.580
L1	—	6.35	—	0.250
$\varnothing P$	3.54	4.08	0.139	0.160
Q	2.54	3.42	0.100	0.134

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